

REMARKS

Applicants are filing the present Amendment in Response to Final Office Action Dated January 4, 2007 along with an RCE to enable the Examiner to fully consider the present amendments and arguments.

Applicants have cancelled claims 2, 15, 16, and 26, and amended independent claims 1, 14, and 21 to require a "magnetic resonance scanner" and/or a "magnetic resonance scanning protocol." Support for these amendments can be found throughout the application, including, e.g., page 1, lines 1-5; page 3, lines 3-7; page 5, lines 24-27; page 6, line 2 to page 11, line 3. Thus, all independent claims (claims 1, 14, 21, and 28) now require magnetic resonance scanning/imaging. Applicants have further amended all independent claims to require dynamically updating slice prescriptions in the magnetic resonance scanning/imaging protocol. Support for these amendments can be found at, e.g., page 7, line 21, to page 8, line 11. Applicants have also amended claim 3 to depend from claim 1, rather than now canceled claim 2.

35 U.S.C. § 103

The final Office Action, before the section entitled "Response to Arguments," is word-for-word identical to the first Office Action. Thus, claims 1, 2, 4, 5, 9-19, 21-23, and 25-29 were again rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over Evans et al. (U.S. Patent No. 6,858,003) in view of Cosman (U.S. Patent No. 6,662,036). Of these claims, claims 1, 14, 21, and 27 are independent.

In responding to the first Office Action, applicants noted that Evans does not disclose updating a scanning protocol to compensate for movement/motion of the subject, as required by the claims. Instead, Evans compensates for patient motion by mechanically adjusting the position of the surgical instrument to keep it constant with respect to the area for surgery. Evans thus discloses a very different system from what is claimed here. The Examiner did not dispute this distinction of Evans in the final Office Action, but instead disagreed with applicant's arguments concerning Cosman.

With respect to Cosman, the final Office Action states (at page 6),

Cosman discloses updating of a scanning protocol definitively in Column 7 Lines 6-22, where the protocol is updated in lieu of the motion of a patient's internal organs moving. Thus, Cosman does indeed disclose 'updating' a scanning protocol based on radiation by 'ensuring that the patient receives treatment even though the patient's internal organs are moving'. Therefore, the reference by Cosman ('036) does indeed disclose a method of updating a scanning protocol to compensate for the motion of a subject.

The paragraph that the Examiner cites in Cosman at column 7, lines 6-22, indeed mentions a so-called "dynamic mode," but discloses correcting for patient movement by synchronizing the radiation from a LINAC machine to ensure that the beam 6 impacts the proper target even though the patient's internal organs are moving. There is no updating of the scanning protocol itself, and certainly there is no discussion of dynamically updating slice prescriptions in a magnetic resonance imaging protocol.

Cosman further describes how this dynamic process works. In particular, the process is controlled by the controller 38 with feedback to the optical tracking processor 34 through comparator 37 (col. 7, lines 15-17). This controller and feedback system is further described by Cosman at col. 6, lines 19-58, where Cosman describes a calibration procedure and a display unit 39 that "dynamically indicates the positional relationships with a graphic image." The controller 38 "controls the angles and shapes of the radiation beam B" (col. 6, lines 30-31), and can also drive the couch on which the patient is lying (col. 6, lines 53-53). This disclosure in Cosman is clearly different from applicants' claimed invention, and there is simply nothing in Cosman that could be considered even analogous to applicants' claimed invention.

Applicant is claiming updating a scanning or imaging protocol, i.e., a protocol used for scanning or imaging a subject, and in particular the claims now recite dynamically updating slice prescriptions in an MRI scanning protocol, not updating the angles and shapes of a treatment beam or moving the subject. The details of systems and methods for updating MRI slice prescriptions are described in the present application at page 7, line 20 to page 8, line 27. By claiming this particular approach to dynamically updating the magnetic resonance scanning/imaging protocol, applicant has even further distanced the claims from what Cosman and/or Evans disclose.

To summarize, applicants' independent claims cover updating the way in which magnetic resonance data is acquired, as the image is being acquired, by dynamically updating the slice prescriptions used in the protocol. This is very different from Evans, which is focused on physically moving a surgical instrument to maintain a constant position relative to the area for surgery, and from Cosman, which as stated above is focused on changing the parameters of a treatment beam or moving the patient. Neither reference discloses the feature of updating the way in which magnetic resonance data is acquired, as the image is being acquired, by dynamically updating slice prescriptions. Consequently, none of the independent claims would be unpatentable under 35 U.S.C. 103(a) in view of the combination of Evans and Cosman. The dependent claims noted in this rejection are unpatentable under 35 U.S.C. 103(a) for at least the reason that they depend from the independent claims that are patentable for the reasons discussed above.

The remaining rejections cover a few additional specific dependent claims.

Claims 3 and 24 have been rejected as being allegedly obvious over Evans and Cosman, and further in view of Beetz, Jr. et al. (U.S. Patent No. 6,045,677). Claims 6 and 7 have been rejected as being allegedly obvious over Evans and Cosman, and further in view of Schmitz (U.S. Patent No. 6,050,724). Claim 8 has been rejected as being allegedly obvious over Evans and Cosman, and further in view of Nakagawa et al. (U.S. Patent Application No. US2002/0122117). Claim 20 has been rejected as allegedly obvious over Evans and Cosman, and further in view of Ward et al., Mag. Res. Med. (2000). In each of these rejections, the Office admits that the combination of Evans and Cosman does not expressly describe the specific claim limitations, but that these particular limitations would have been obvious in light of the additionally cited references. Applicants submit that none of these additionally cited references disclose or even suggest dynamically updating a scanning or imaging protocol, much less dynamically updating slice prescriptions in an MRI scanning protocol. Thus, each of these dependent claims are patentable because they depend from a patentable independent claim, for at least the reasons discussed above.


CONCLUSIONS

Applicants respectfully submit that the claims are in condition for allowance.

The petition fee in the amount of \$225 is being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply all charges or credits to Deposit Account No. 06-1050, referencing Attorney Docket No. 04843-043001.

Respectfully submitted,

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